

What is claimed is:



1. A method for mitigating interference caused by ghost signals generated by an antenna array system, the method comprising:  
determining an effective weight of a ghost signal; and  
obtaining a downlink beamforming strategy as a function of the effective weight, the downlink beamforming strategy for transmitting a downlink signal to a receiver, wherein the downlink beamforming strategy provides an interference mitigated region at a location susceptible to interference caused by the ghost signal.

2. The method of claim 1, further comprising:  
calibrating the antenna array system to determine a non-linear characteristic of the antenna array system; and  
determining the effective weight based on the non-linear characteristic of the antenna array system.

3. The method of claim 1, further comprising:  
determining a non-linear characteristic of the antenna array system; and  
determining the effective weight based on the non-linear characteristic of the antenna array system.

4. The method of claim 1, further comprising:  
varying the intensity of the interference mitigate region.

1 5. The method of claim 1, wherein the ghost signal is at least in part caused by  
2 transmitter intermodulation.

1 6. The method of claim 1, wherein the ghost signal affects a channel on which the  
2 downlink signal is transmitted.

1 7. The method of claim 1, wherein the downlink signal is transmitted on a first  
2 channel.

1 8. The method of claim 7, wherein the ghost signal affects a second channel.

1 9. The method of claim 7, wherein the ghost signal further affects the first channel.

1 10. The method of claim 9, wherein the first channel is utilized by first remote user  
2 terminal at the location.

1 11. The method of claim 10, wherein the first channel is further utilized by a second  
2 remote user terminal at a different location.

1 12. A method for mitigating interference caused by ghost signals generated by an  
2 antenna array system, the method comprising:

3 obtaining a first weight for a first downlink signal;

4 obtaining a second weight for a second downlink signal;

5 determining a characteristic of a ghost signal that would result by the interaction  
6 of transmitting the first and second downlink signals; and

7 adjusting the second weight to mitigate the ghost signal.

1 13. The method of claim 12, further comprising:  
2 calibrating the antenna array system to determine a non-linear characteristic of the  
3 antenna array system; and  
4 determining the characteristic based on the non-linear characteristic of the antenna  
5 array system.

1 14. The method of claim 12, further comprising:  
2 determining a non-linear characteristic of the antenna array system; and  
3 determining the characteristic based on the non-linear characteristic of the antenna  
4 array system.

1 15. The method of claim 12, wherein the ghost signal is at least in part caused by  
2 transmitter intermodulation.

1 16. The method of claim 12, wherein the ghost signal affects a channel on which the  
2 at least one of the first and second downlink signals is transmitted.

1 17. The method of claim 12, wherein the first and second downlink signals occupy  
2 the same channel.

1 18. The method of claim 12, wherein the first and second downlink signals occupy  
2 different channels.

1 19. The method of claim 12, wherein the characteristic is determined in an iterative  
2 manner.

1 20. A method for reducing ghost signal interference caused by a transmitter  
2 employing an antenna array, the method comprising:  
3 determining that transmission of at least a first downlink signal by the transmitter  
4 will produce a ghost signal;  
5 adjusting a downlink weight corresponding to the first downlink signal to mitigate  
6 the ghost signal; and  
7 transmitting the first downlink signal in accordance with the downlink weight.

1 21. The method of claim 20, wherein the ghost signal is mitigated at a first location  
2 corresponding to a first remote user terminal.

1 22. The method of claim 21, wherein the downlink signal is intended for the first  
2 remote user terminal.

1 23. The method of claim 21, wherein the downlink signal is intended for the first  
2 remote user terminal, and the ghost signal is mitigated at a second location corresponding  
3 to a second remote user terminal.

1 24. The method of claim 23, wherein the transmitter transfers information with the  
2 first and second remote user terminals utilizing the same communication channel.

1 25. The method of claim 24, wherein the first and second remote user terminals are  
2 distinguished by the transmitter by spatial channels.



